

REMARKS

Introduction

Claims 1-20 are pending, with claims 1, 6, 11 and 16 being independent.

Examiner Interview

Applicant's representative wishes to thank Examiners Fotakis and Fan for the interview accorded him on February 27, 2008. During the interview, Applicant's representative discussed the outstanding rejections, and explained the differences between the Applicants' claimed invention and the Bradley patent cited in the Office Action. The Examiner agreed to give further consideration and search upon filing a reply after final. In accordance with this representation by the Examiner, Applicant provides this reply.

Claim Rejections - 35 U.S.C. § 112

Claims 1-20 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. Based on the following remarks, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

In support of this rejection, the Examiner appears to argue that, because the simple delay-and-multiply circuit of FIG. 15 alone will not recover the symbol clock of an ATSC DTV signal, that the circuit cannot be used in combination with other circuits to accomplish this objective.

Applicant respectfully disagrees. FIGS. 18 and 19, and the corresponding portions of the specification, describe an embodiment that includes not only a delay-and-multiply circuit (elements 1816 and 1818 of FIG. 18), but also several other signal processing elements to prepare the ATSC DTV signal for the delay-and-multiply circuit. In particular, the ATSC DTV signal is processed by receiver 1804, intermediate-frequency (IF) filter 1806, downconverter 1808, which can include pilot filter 1810 and mixer 1812, and low-pass filter (LPF) 1814 before being fed to the delay-and multiply circuit. The signal fed to the delay-and-multiply circuit is in fact a quadrature amplitude modulation (QAM) signal, which as noted in the discussion of FIG. 15, is a type of signal that can be processed by a delay-and-multiply circuit to obtain a clock signal (see Applicant's specification, paragraph [0111]).

During the Examiner interview, the Examiner asserted that the description appeared to be inadequate to enable one skilled in the art to make and use the claimed invention. In response, Applicant's representative noted that embodiments of the claimed invention are shown as a block diagram in FIG. 18, as a process in FIG. 19, and are described with reference to FIGS. 18 and 19 in paragraphs [0115] – [0117] of the specification. Applicant therefore respectfully submits that the description would enable one skilled in the art to make and use the claimed invention, and respectfully requests that the rejection be reconsidered and withdrawn.

Claim Rejections - 35 U.S.C. § 103

Claims 1-2, 5-7, 10-12, 15-17, and 20 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent No. 6,483,855 to Bradley et al. (hereinafter "Bradley") in view of U.S. Patent No. 5,673,293 to Scarpa et al. (hereinafter "Scarpa"). Claims 2, 7, 12, and 17 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Bradley and Scarpa as applied to claim 1, and further in view of U.S. Patent No. 6,366,621 to Kuntz et al. (hereinafter "Kuntz"). Based on the following remarks, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

In order to establish a prima facie case of obviousness under 35 U.S.C. § 103, each and every element of the claimed invention must be disclosed in the combination of art applied. Because at least one element of Applicant's claimed invention is not disclosed in the combination of applied art, Applicant respectfully submits that no prima facie case of obviousness under 35 U.S.C. § 103 has been established.

Applicant's claim 1, as amended, is exemplary. That claim is directed to "recovering a symbol clock signal from an American Television Standards Committee (ATSC) digital television (DTV) signal" and recites "a downconverter adapted to coherently downconvert the ATSC DTV signal to a baseband signal". The remaining independent claims include similar recitations.

In contrast, Bradley appears to disclose a frame synchronizer for use with signals such as differential quadrature phase shift keying (DQPSK) signals. Bradley does not mention the ATSC DTV signal, or any type of signal like the ATSC DTV signal, which is a vestigial sideband

(VSB) signal having a pilot carrier. Indeed, none of the signals mentioned by Bradley have a pilot carrier. Scarpa does nothing to remedy this defect.

During the Examiner interview, Applicant's represented also noted additional defects with Bradley. First, Bradley does not appear to be capable of generating a symbol clock, as required by Applicant's claims. In fact, Bradley does not mention a symbol clock or any other sort of clock signal. In contrast, Bradley is directed toward generating time offset corrections (FIG. 2 at 28) and frequency offset corrections (FIG. 2 at 26). Scarpa does nothing to remedy this defect.

Second, Bradley does not multiply the baseband signal and the delayed baseband signal, as required by Applicant's claims. Instead, referring to Bradley FIG. 3, a conjugator 44 generates a complex conjugate 46 of the delayed baseband signal, which is then multiplied by baseband signal 49 by multiplier 40. Scarpa does nothing to remedy this defect.

Third, in Bradley the output 48 of multiplier 40 does not reach synchronization corrector 32 (Bradley FIG. 2), which the Examiner relies upon to teach Applicant's claimed phase-locked loop. Instead, output 48 is used to generate various metrics, such as Hamming distance, Euclidean distance, and frequency offset. Scarpa does nothing to remedy this defect.

The above arguments apply to the dependent claims as well. Therefore, for at least the reasons given above, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Conclusion

Applicant submits that all of the claims are now in condition for allowance, which action is requested. Filed herewith is a Petition for Extension of Time with the required fee.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. However, should there remain unresolved issues that require action, it is respectfully requested that the Examiner telephone Richard A. Dunning, Jr., Applicant's Attorney, at 831.420.0561 so that such issues may be resolved as expeditiously as possible.

Date: February 28, 2008
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